

**PATENT COOPERATION TREATY**  
**PCT**

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

(PCT Article 36 and Rule 70)

REC'D	19 APR 2005
WIPO	PCT

Applicant's or agent's file reference OPP031431KR	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. <b>PCT/KR2003/002479</b>	International filing date (day/month/year) <b>18 NOVEMBER 2003 (18.11.2003)</b>	Priority date (day/month/year) 27 NOVEMBER 2002 (27.11.2002)
International Patent Classification (IPC) or national classification and IPC <b>IPC7 C08K 5/107, C08G 77/18, B32B 27/38, G03F 7/004</b>		
Applicant <b>DONGJIN SEMICHEM CO., LTD. et al</b>		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p><input type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of _____ sheets.</p>	
<p>3. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <li>I <input checked="" type="checkbox"/> Basis of the report</li> <li>II <input type="checkbox"/> Priority</li> <li>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</li> <li>IV <input type="checkbox"/> Lack of unity of invention</li> <li>V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</li> <li>VI <input type="checkbox"/> Certain documents cited</li> <li>VII <input type="checkbox"/> Certain defects in the international application</li> <li>VIII <input type="checkbox"/> Certain observations on the international application</li> </ul>	

Date of submission of the demand <b>01 JUNE 2004 (01.06.2004)</b>	Date of completion of this report <b>18 MARCH 2005 (18.03.2005)</b>
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer <b>HONG, SUNG RAN</b> Telephone No. 82-42-481-8146 

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/KR2003/002479

## I. Basis of the report

## 1. With regard to the elements of the international application:\*

 the international application as originally filed the description:pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_ the claims:pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, as amended (together with any statement) under Article 19  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_ the drawings:pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_ the sequence listing part of the description:pages \_\_\_\_\_, as originally filed  
pages \_\_\_\_\_, filed with the demand  
pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language English which is the language of a translation furnished for the purposes of international search (under Rule 23.1(b)). the language of publication of the international application (under Rule 48.3(b)). the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

 contained in the international application in written form. filed together with the international application in computer readable form. furnished subsequently to this Authority in written form. furnished subsequently to this Authority in computer readable form The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished. The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4.  The amendments have resulted in the cancellation of: the description, pages \_\_\_\_\_ the claims, Nos. \_\_\_\_\_ the drawings, sheets \_\_\_\_\_

## 5.

 This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed," and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

## INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

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## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

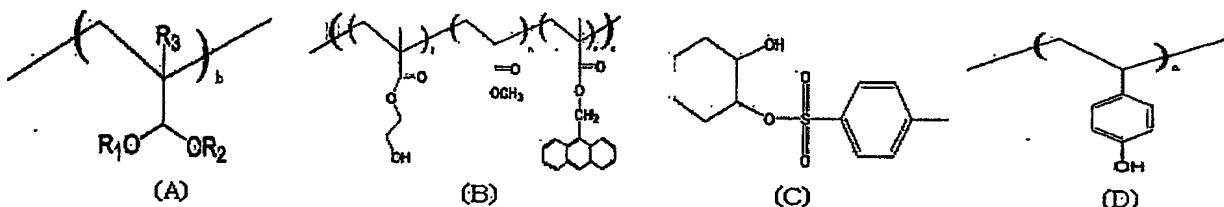
Novelty (N)	Claims	1 - 11	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	NONE	YES
	Claims	1 - 11	NO
Industrial applicability (IA)	Claims	1 - 11	YES
	Claims	NONE	NO

## 2. Citations and explanations (Rule 70.7)

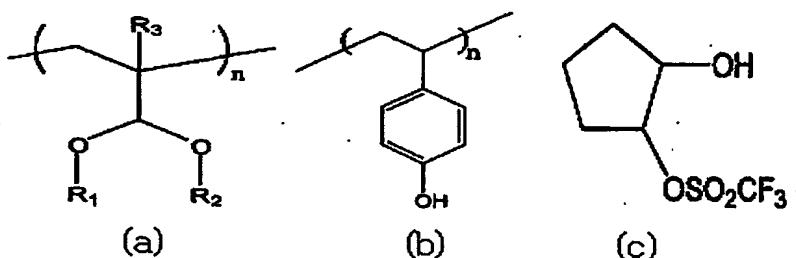
Reference is made to the following document:

D1 : KR 2001-18906 A (Hynix Semiconductor Inc.)

The present invention according to claims 1-11 relates to an organic anti-reflective composition, a patterning method using the same and a semiconductor device prepared by using the same patterning method. This organic composition comprises a crosslinking agent(A), a light absorbing agent(B), a thermal acid generator(C), an organic solvent(D) and an adhesivity enhancer(E):



Document D1 is considered to represent the most relevant state of the art, discloses an organic polymer for preventing anti-reflection comprising a polymer of formula 1 as a crosslinking agent(a), a polyvinylphenol of formula 6 as a photo-absorbing agent(b), a thermal acid generator of formula 7(c) and an organic solvent(d).



(Continued on Supplemental Box.)

**INTERNATIONAL PRELIMINARY EXAMINATION REPORT**

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**Supplemental Box**

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of:

**BOX V.**

Comparing the present invention with D1, both inventions are the same in preparing an organic anti-reflective composition comprising a crosslinking agent, a light absorbing agent, a thermal acid generator, and an organic solvent.

An adhesivity enhancer(E) in the present invention is used for effectively solving the standing wave effect and significantly preventing pattern collapse of photosensitizer on top of the organic anti-reflective film. However, it can be already used in the document D1 as a photo-absorbing agent or light-absorbing agent. And the (B) component is also a light-absorbing agent. So, it is obvious for the person skilled in the art that the (B) and (E) components in the present invention can be chosen together as a light absorbing agent.

Also, a thermal acid generator(C) in the present invention is same in the role of generating a thermal acid, comparing with (c) in document D1. It is also obvious for the person skilled in the art that a thermal acid generator can be used as a catalyst even if the chemical structure is slightly different.

So, claims 1-11 are trivial and not capable of supporting the requirements of inventive step under PCT Article 33(3).

Consequently, claims 1-11 are novel and also appear to be industrially applicable, but not inventive.